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ABSTRACT

This paper describes a technology assessment curriculum developed at Auburn High School (Virginia). The program was used in Honors Biology and General Chemistry classes and is based on Neil Postman's ten principles of interaction between technology and society and Edward de Bono's "Six Thinking Hats," a system of approaching a problem that provides a formalized framework to focus thinking. Objectives of the programs were for students to: analyze local and recent technological, economic, scientific, and cultural interactions; address these technologies from the points of view of de Bono's and Postman's frameworks; and produce a portfolio of products according to principles of authentic assessment that document an understanding of Postman's principles and the technologies investigated. Topics discussed include: (1) rationale for the project and an introduction to de Bono's and Postman's techniques; (2) standards and technology education, including Virginia and national standards/frameworks; (3) the importance of technology assessment to contemporary society; (4) the amount of technical knowledge needed to make intelligent decisions about technology; and (5) basic skills necessary in order to be comfortable with investigations into technology/science/society issues, including understanding of the foundations of scientific reasoning, and science, humanities, and social sciences problem solving skills. Sample student handouts and assignments are included. (DLS)

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ED 429 551

# Using Postman and de Bono as Guiding Principles in an Interdisciplinary Standards Based Approach to Technology Analysis for Secondary School Students

by

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Using Postman and de Bono as Guiding Principles in an Interdisciplinary Standards Based Approach to Technology Analysis for Secondary School Students

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**Introduction :**

Neil Postman, in his book **The End of Education** (1995) describes ten principles which could be used in analyzing the interaction between technology and society. Notably, he includes them at the end of the chapter on information technologies; however, they can be applied as general principles to most technological products or practices. Edward de Bono's work in lateral thinking has produced a tool called the Six Thinking Hats which also offers promise in technology assessment. Operating on the assumption that students study best things which are in their immediate world and that authentic investigations more actively engage them than do artificial ones, the following objectives were designed for students in Honors Biology and General Chemistry classes which are taught at Auburn High School:

- Students will analyze local and recent technological / economic /scientific / cultural interactions .

- Students will address these technologies from the point of view of de Bono's Six Thinking Hats and Postman's Ten Principles.
- Students will produce a portfolio of products according to the principles of authentic assessments which document their understanding of Postman's Principles and the technologies they are investigating.

The portfolio and products were assessed with the rubrics and performance criteria which we use in our school's performance based assessment package. ( AEL 1992, Jervis and Rolfe1994, Bull *et al* 1995).

**Rationale :**

We are frequently faced with the necessity to evaluate the desirability of technological interactions with the world in which we live. Often times these evaluations can be of relatively minor impact, such as whether to purchase a turntable or a CD player; Beta rather than VHS video tape machines. At other times, decisions of more importance need to be made, although sometimes we may be relatively removed from the immediate impact, such as voting on a referendum for a highway expansion, power line construction, rationing of health care resources or even placing computers in every classroom and requiring their use by every student. Many times, especially in the heat of public debate, or on issues which are emotionally charged because they are close to home and hearth, decisions are not made with insight, forethought, or considered deliberation. Such "knee jerk" NIMBY decisions do little to advance the rational applications of technologies which may make life better for many. Some mechanism needs to be in place to evaluate alternatives and

to make informed decisions. One such mechanism of analysis would parallel the type of tool for enhanced lateral thinking advocated by Edward de Bono (1992).

Although more often applied to the development of creative thinking, such techniques as his Six Thinking Hats have proved useful in evaluations of technology / society interactions.

de Bono's Hats

- White — Deals with facts, figures, and objective information
- Red — Deals with emotions and feelings
- Black — Presents logical negative thoughts and aspects
- Yellow — Presents positive constructive thoughts
- Green — Presents creativity and new ideas about the situation
- Blue — Represents exercising control over other hats and thinking process

Another analytical technique which may prove useful in developing meaningful discussion on technological issues is supplied by Neil Postman and herein is called Postman's Principles. In his discussion of the impact of modern information transfer technologies in "The Word Weavers / The World Makers" chapter of **The End of Education** (1995) he delineates the following:

Postman's Principles:

1. All technological change is a Faustian bargain. For every advantage a new technology offers, there is always a corresponding disadvantage.
2. The advantages and disadvantages of new technologies are never distributed evenly among the population. This means that every new

technology benefits some and harms others.

3. Embedded in every technology there is a powerful idea, sometimes two or three powerful ideas. Like language itself, a technology predisposes us to favor and value certain perspectives and accomplishments and to subordinate others. Every technology has a philosophy, which is given expression in how the technology makes people use their minds, in what it makes us do with our bodies, in how it codifies the world, in which of our senses it amplifies, in which of our emotional and intellectual tendencies it disregards.
4. A new technology usually makes war against an old technology. It competes with it for time, attention, money, prestige, and a "world view."
5. Technological change is not additive; it is ecological. A new technology does not merely add something; it changes everything.
6. Because of the symbolic forms in which information is encoded, different technologies have different intellectual and emotional biases.
7. Because of the accessibility and speed of their information, different technologies have different political biases.
8. Because of their physical form, different technologies have different sensory biases.
9. Because of the conditions in which we attend to them, different technologies have different social biases.
10. Because of their technical and economic structure, different technologies have different content biases.

Of course, Postman's Principles can be combined with de Bono's Thinking Hats to allow us to analyze technological change in a rational and thoughtful way. As the pace of change quickens and as the roles of citizens at all levels become more immersed in technological change, the need for such rational discourse becomes more imperative. The time is not only right for the introduction of true broadbased "technology education" in the Postman sense of the term, but the times necessitate it.

Postman points out that what often passes as "technology education"

in most schools today is really technical training. In such a way he parallels Mortimer Adler's thinking in the **Paiedia Proposal** (1982) in which the distinctions between vocational training and education are made. Postman, and I believe Adler, would agree that what is currently being done is narrowly defined training in the use of technologies like computers or video equipment, with little serious evaluation of the cross disciplinary nature of these and other technologies and their impacts being present. Thus we continue the "student as noncritical consumer" regime which translates into adult as consumer later in life. The weakness is that there is often little effort to give students, and subsequently adults, the skills to critically evaluate the impact that large and small technologies make in their lives.

**Standards and Technology Education**

**Commonwealth of Virginia, Department of Education, Standards of Learning Correlations** [ All references and citations refer to the document circulated in its electronic form and available for viewing in whole at the Department of Education Site on the WWW, address given below.]

Few sites in the core content SOL's are clearly open to applications of Postman's Principles. The Commonwealth has inserted SOL's for computer and technology use in the core content areas. Although there are some differences between the SOL's as expressed in English, Mathematics,

Science and Social Studies, the general emphasis is on word processing and electronic data base use.

Throughout the emphasis is on USE and not UNDERSTANDING in the sense of Postman's Principles. Also, there is a very heavy emphasis on computer skills and an almost total exclusion of non-computer based technologies . Content specific areas where technology as a subject is studied at the high school level are almost totally missing from the science, Language Arts, and Mathematics SOL's.

It would thus seem that the SOL's, the Commonwealth's guidelines fall short of setting the type of critical analysis of technology which Postman proposes as one of the desired goals. Opportunities do, however present themselves.

**At the National Level**

Application of Postman's Principles gains support from two widely publicized curricular frameworks.

In the long awaited National Science Standards, critical technology treatment shows marked improvement. In some of their own words, these are not standards for technology education; rather, these standards emphasize abilities associated with the process of design and fundamental understandings about the enterprise of science and its various linkages with technology. Standards which can utilize Postman's Principles include CONTENT STANDARD E.

As contrasted with the Commonwealth Standards of Learning in

Science, technology education as described by Postman is given adequate coverage as something that students should do according to the national science standards.

There is another framework (not standards) which also proposes a curriculum structure which will embrace applications of Postman's Principles in technology education. That framework is **Science for All Americans** (SFA) (1990). In chapter three, this document sets out a supporting structure for technology education rather than technical training. "Technology---like language, ritual, values, commerce, and the arts---is an intrinsic part of a cultural system and it both shapes and reflects the system's values." (p 23). The companion document, **Benchmarks for Science Literacy** (1993) which sets out more concrete and pragmatic guidelines for structuring curriculum around the SFA in section 3c outlines principles of analysis which parallel Postman's in several ways. These guidelines offer ample opportunity to examine technology using Postman's Principles and give support from a national resource, albeit not a national standard. But then again, it can be said that the Project 2061, the program which led to SFA and Benchmarks , was not intended to be a set of standards.

**Revisiting the Commonwealth of Virginia Standards**

Postman (p. 191) offers the following observation, "Technology education is not a technical subject. It is a branch of the **humanities**." [emphasis added]. If such is accepted as true, then it comes as no surprise

that the single curricular area in which his principles get their strongest support in the Commonwealth document is in Social Studies. Here, select SOL's which open themselves to using Postman's Principles include the following:

| | | | |
|---|---|---|---|
| 9.5 | 9.7 | 9.9 | 9.10 |
| 9.11 | 10.2 | 10.3 | 10.12 |
| 10.13 | 11.8 | 11.15 | 11.17 |
| 12.13 | | | |

Thus, although missing from most of the Commonwealth's Standards, there is ample opportunity to examine technology in light of Postman's Principles in the Social Studies SOL's. One could also add, that since many of the secondary level English SOL's address the need to read in a variety of genre as well as communicate in a variety of ways (fiction, nonfiction; written, oral; creative, persuasive), one can easily address technology issues in English using Postman's Principles by selecting readings (e.g **Erewhon**, **We**, **Brave New World**, **1984**, **Silent Spring**, **Jurassic Park**, **The Soul of a New Machine**, *etc* ) or research topics for class analyses and discussions from technology related issues. Of course, the technical information may be presented as part of the science core content areas.

All this points out the interdisciplinary nature of the study of technology. It should also point out the connections between the science and humanities when addressing the issues of technology. Such connections are reflected in the national standards as in :

National Social Studies Standards Performance Expectations (1994)

[Science, Technology, & Society]

Social studies programs should include experiences that provide for the study of relationships among science, technology, and society, so that the learner can:

- identify and describe both current and historical examples of the interaction and interdependence of science, technology, and society in a variety of cultural settings;
- make judgments about how science and technology have transformed the physical world and human society and our understanding of time, space, place, and human-environment interactions;
- analyze how science and technology influence the core values, beliefs, and attitudes of society, and how core values, beliefs, and attitudes of the society shape scientific and technological change;
- evaluate various policies that have been proposed as ways of dealing with social changes resulting from new technologies, such as genetically engineered plants and animals;
- recognize and interpret varied perspectives about human societies and the physical world using scientific knowledge, ethical standards, and technologies from diverse world cultures;
- formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

**Importance to Contemporary Society**

"More and more, citizens are called on to decide which technologies to develop, which to use, and how to use them. Part of being prepared for this responsibility is knowing how technology works, including its alternatives, benefits, risks, and limitations." (**Benchmarks**, p 53)

Clearly, trips to the grocery store where LASER scanners and microwave ovens operate, to the medical office where CAT and MRI are in

use, to governing board meetings where decisions for new highway placements, power line construction or waste disposal facilities are being made point to a need to be a technologically informed citizen or to be at least a thoughtful person following Petroski's (1989) view of "everyday technology".

From a different perspective, as illustrated by the statement made by the mathematician character, Ian Malcom, in the popular book and film **Jurassic Park** , "Just because we can do a thing doesn't mean we should." ( see Crichton, 1990, p. 284 for complete text of statement), citizens are being faced with making decisions on topics such as genetic engineering of foods and medicines, regulation of electromagnetic radiation from appliances and power lines, and use of chlorofluro carbons in aerosol cans. As economic forces continue to shift, the decisions to select what should be developed are being made, with or without informed lay public consent. One can expect that such technical and thus technological issues will only continue to increase. In making decisions on such issues, there needs to be adequate consideration given to the scientific and humanistic issues associated with them. Postman's Principles illustrate a structure which can serve as a framework to readily address these issues. de Bono's Hat's also offers a useful tool for analyses. Once the facts are straight, and once an adequate level of understanding is obtained (no easy task for many matters) then one can seek to apply Postman's Principles to analysis of the impact and interactions that the technology will have.

**Technical Needs**

Postman might argue that intelligent decisions can be made about technology without a high degree of technical knowledge. For example, it can be argued that one need not know technically how an automobile engine works to reach an intelligent decision on pollution regulations. Certainly, it will help many aspects of the analysis of cost benefits to know some of the technical aspects of pollution production and control. But as Shamos (1995) has pointed out, what may be needed is not so much technical knowledge, but " scientific [and technical] appreciation" . In making a decision on technological issues, Shamos has made a convincing argument that when it comes to the scientific aspects of an issue, "students [ and adults ] would be best served by providing them with useful guidelines on how to select ... experts" (p. 200) as is currently done in law and medicine.

For the purpose of legitimizing technology investigations and discussions following Postman's Principles in such a way as to make them acceptable fits in curriculum audits which might label such analyses as irrelevant or intrusive in light of the lack of explicit coverage in some specific curricular content areas, especially in science, one may need to include "significant scientific content". However, to meaningfully apply the Principles in school or out, one may not need to have a deep understanding of scientific content. What one does need is an appreciation of the methods of science and a willingness to accept competent "expert

opinions" (Shamos, Chapter 8).

**Basic Skills**

There are some general methods of science and humanities with which one needs to be familiar to be fully comfortable with deep investigations into technology / science / society issues. These include an understanding and appreciation of the foundations of scientific reasoning.

There are numerous works which can point out the difficulties in approaching technological or scientific issues without an understanding of the methods and mind sets from which information about those issues is derived. Three approachable ones are:

- **Abusing Science** ( Philip Kitchner )
- **The Monkey Business** ( Niles Eldridge )
- **The Demon Haunted World** ( Carl Sagan )

Additionally, if one has an appreciation of the development of a scientific world view and associated methodologies, such as can be found in :

- **The Discoverers** ( Daniel Boorstin )
- **Broca's Brain** ( Carl Sagan )
- **The Age of Science** ( David Knight )

one has the tools to discuss the important scientific content in many technological issues without a deep understanding of the technical aspects of the issue. Perhaps, with internalizing the attitudes of these six sources, and more, one can function as an effective "filter" as Shamos suggests.

In few instances in which one may be called upon to address technological issues will one be able or expected to apply the traditional scientific processes involved in the "classical scientific method". Indeed, it is doubtful that one will be called upon to apply them in any technological situation. Rather, one may be expected to apply competent rhetorical skills (English and Social Studies) to filter the expert opinions dealing with the technical aspects of the problem. One can gain a benefit from being able to:

- ask competent questions,
- identify associated problems,
- follow the legitimacy of the logic of the arguments,
- respect the statistics applied to the issue (Mathematics), and
- weigh the cost and benefits (Economics) and human impact (humanities) of the issue.

Toward the end of identifying more traditional scientific and procedural skills for the purpose of "teaching" students skills necessary to make competent decisions on technological issues, the following can be identified:

**Science Problem Solving Skills**

- Problem Identification
- Technical Analysis
- Hypotheses Testing and Evaluation
- Observations
- Data Analysis
- Evaluations of Conclusions

**Societal Problem Solving Skills (humanities and social sciences)**

From the **Expectations of Excellence: Curriculum Standards for Social Studies** (1994), essential skills for Social Studies which may be addressed in a proposed program of study technology are easily identifiable. Using such skills, students will develop abilities to perform the following *humanities* [emphasis added] based research activities:

- Case Studies development
- Market Analyses
- Cost Benefit Analyses
- Polling and Surveying
- Gathering Anecdotal Evidence
- Primary Source Analyses
- Risk Analyses
- Identification of Cultural Biases (Anthropological)
- Quality of Life Analyses
- Qualitative Analyses
- Concensus Taking
- Lateral Thinking Development
- Rhetorical Analyses
- Logical Analyses

Through application of these skills and development of these types of products, students will assess the social implications of technology emergent in their localities.

**Related Materials:**

Student Handouts which illustrate an implementation of the strategies described in this paper are available.

**Reference Materials:**


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## Student Handouts and Assignments

**Objectives for Technology Assessment Project:**

Students will:

- Clearly identify a technological issue to investigate
- Apply appropriate Science and Humanities Problem Solving Skills to an analysis of the issue
- Develop background knowledge dealing with the technological issue from the scientific and humanistic points of view using the procedural skills given earlier
- In light of their understanding, apply Postman's Principles to an Evaluation of the issue
- Discuss the issue in a variety of formats
- Propose an evaluation of the issue in light of Postman's Principles and their application of the problem solving skills
- Identify, test and consider alternative solutions
- Defend chosen decisions
- Present their findings in a portfolio of products which demonstrate their procedural and knowledge accomplishments

**Postman's Principles:**

1. All technological change is a Faustian bargain. For every advantage a newtechnology offers, there is always a corresponding disadvantage.
2. The advantages and disadvantages of new technologies are never distributed evenly among the population. This means that every new technology benefits some and harms others.
3. Embedded in every technology there is a powerful idea, sometimes two or three powerful ideas. Like language itself, a technology predisposes us to favor and value certain perspectives and accomplishments and to subordinate others. Every technology has a philosophy, which is given expression in how the technology makes people use their minds, in what it makes us do with our bodies, in how it codifies the world, in which of our senses it amplifies, in which of our emotional and intellectual tendencies it disregards.
4. A new technology usually makes war against an old technology. It competes with it for time, attention, money, prestige, and a "world view."
5. Technological change is not additive; it is ecological. A new technology does not merely add something; it changes everything.
6. Because of the symbolic forms in which information is encoded, different technologies have different intellectual and emotional biases.
7. Because of the accessibility and speed of their information, different technologies have different political biases.
8. Because of their physical form, different technologies have different sensory biases.
9. Because of the conditions in which we attend to them, different technologies have different social biases.
10. Because of their technical and economic structure, different technologies have different content biases.

## De Bono's Hats

Edward de Bono, in his work in developing analytical and thinking skills, has developed a system of approaching a problem which provides a formalized framework to help focus thinking. To make the framework memorable and to facilitate its use, he has designated the analytical tools as hats, arranged according to the following general guidelines:

- White Hats : deals with gathering and identifying facts, figures, and information about a problem under analysis
- Red Hat : deals with analyzing emotions, feelings, hunches, intuitions about a problem under analysis
- Black Hat : deals with approaching the problem with caution and points out truth, judgment, criticisms of information
- Yellow Hat : deals with addressing the advantages, benefits, savings associated with a particular course of action with regards to the problem under analysis
- Green Hat : deals with the exploration, proposals, suggestions, new ideas associated with the problem under analysis
- Blue Hat : addresses how we approach problem solving and analysis by thinking about thinking, reflection on process

" The six-hats method is really an attention directing tool, because it directs our attention towards certain aspects and towards a certain type of thinking." (de Bono, p79)

You are to apply de Bono's "thinking hats" to an analysis of the technology you are investigating. You should prepare a presentation concerning the following:

- White Hats : What are the facts, figures, and relevant information which needs to be available for the problem under analysis ? Be sure to consider multiple sources for your information.
- Red Hat : What are the various emotions, feelings, and intuitions which are in circulation about the problem under analysis? Be sure to represent multiple points of view in your analysis
- Black Hat : What cautions have been pointed out about the technology under analysis ? What is unambiguously true about it ? What are some criticisms by multiple interest groups which have been expressed ?

- Yellow Hat : What are the advantages, benefits, savings associated with a adopting the technology or change under analysis ?
- Green Hat : What have been consensus or compromise proposals or suggestions, and what new ideas have been associated with the technology under analysis
- Blue Hat : How has analyzing the technology and its impact been facilitated by this application of de Bono's framework ? Have any insights been gained by looking closely at the technology assessment in this way ? What questions still need to be addressed ? Was this method weak in any given area of analysis ?

**Technology Analysis Project Topics Selected by the Students in Pilot Study**

| TOPIC | STUDENT TEAMS |
|---|---|
| Fifth Grade Computer Project | Matt E. |
| Agricultural Developments | Dayton |
| Regional Trauma Center | Kevin |
| Smart Road | Amanda , Lisa , Jessica |
| Unabomber | Jonnie , Matt G., Brian |
| V-Chip | Ben W. |
| RAAP | Adam , Jordan , Alan |
| Petroleum Transport | Ben L. |
| Wide Area Network | Leslie, Jimmy, Heather, April |
| Smart Road | Amber , Bobbi Jo, Jessica , Jeannetta |
| APCO Power Line | Jennifer , Deanna, Kristen, Laura |
| RAAP | Nathan, Holly |
| Transgenic Organisms | Emerson, Kathryn |

Part I: Background research:

You need to gather as much information as you can on the topic you selected. Specific information may include newspaper articles, original source documents such as environmental impact statements, planning documents, interviews, etc. You need to have these in a PORTFOLIO OF BACKGROUND INFORMATION which is available at all times for you and your group to use. It should be brought to the classroom each school day.

You need to concentrate on specifically becoming able to answer questions such as:

1. How does or will this technology influence people's lives ?
2. Who benefits from this technology ? Who is denied access to this

technology ?
3. What are cost issues associated with this technology ?
4. What are safety issues ?
5. What is the environmental impact associated with it ?
6. What are the benefits of having this technology ?
7. What are the drawbacks of having this technology ?
8. What problems is this technology proposed to be a solution to ?
9. When is the technology predicted to be out of date ?
10. What are the "sides" in discussion of this technology ?

You do not need to be able to answer them yet, just begin gathering materials which you'll use in the future.

## Historical Perspective

Ned Lud and Jeremy Rifkin are two names which often come up in discussions of technology and society. You have been assigned to gather information about their lives and work.

To help you focus on them, the following questions need to be answered and turned in one week from the date this is posted:

1. When was Ned Lud born ? When did he die ?
2. Against what technology did he protest ?
3. How did he protest ?
4. What were his concerns about the technology ?
5. Were his concerns justified ? Was he correct in his assessment of the effects of the technology ?
6. Jonnie Davis has said that Lud was the first "Unabomber". Do you consider this a true statement ? Why ? Why not ?
7. What groups supported Lud ? What groups were against his actions ?
8. Think carefully before you answer the following question, From your understanding of why Lud did what he did, do you think that he would be for or against the technology you are studying ? Why ?
9. How is Lud related to the "Monkey Wrench Gang" as described by Edward Abbey ?
10. Jeremy Rifkin has been called a modern "Lud". Do you agree with the assessment ?
11. Why ?
12. When was Rifkin born ?
13. What does he do for a living ?
14. What technology does he protest against ? Why ?
15. How does he protest ?
16. Is he correct in his assessment of technology ?
17. Have any of Rifkin's concerns proven to have been justified ?
18. Are there groups which support Rifkin's views and actions ?
19. Think carefully before you answer the next question: Based on your understanding of Rifkin's views, would he be for or against the technology you are investigating ? Why ?

What is a neo-luddite ?

## Policy Analysis

One of the most important applications of the type of investigation that you are doing is in the area of policy analysis. In policy analysis, an issue, such as the technologies you are investigating, is viewed in a detailed way from many perspectives (many Hats) and then a comprehensive report of these aspects is prepared. This report is used by people who make policies on what should or should not be done. Employers who use this type of work can be found in:

* major industries looking for information to guide their research and development,
* investment firms to guide investments,
* government seeking to plan development or regulatory activities
* special interest groups such as environmental or consumer safety

In this assignment, you are to conduct the following activities:

* Investigate the positions of the major political parties on the issue you're researching.
* Prepare a position paper on the issue reflecting the perspectives of the parties.
* Prepare a presentation (visual) which compares the perspectives.
* Present evidence that you have for the rationale behind the parties' positions.
* Evaluate the positions.

You will be well advised to consult with the following groups:

* Local political party personnel
* Senior government students
* History, government and English teachers
* Your classmates

It is definitely possible and even probable that you will be able to get credits in multiple classes if the products you prepare meet the criteria for those classes. Please ask your other teachers for information on that possibility.

## Postman's Principles: The Final Assignment

By this time you have investigated a number of the aspects of Technology Assessment. In so doing, you have looked at the historical foundations of critical assessement of technology (the Lud and Rifkin assignment). You have also looked at analysis of the factual, emotional, positive and negative aspects of technology assessment (the deBono assignment). In your research you have, I hope, looked at primary source documents dealing with the technology under investigation (the letters, articles, reports, and interviews you have read or conducted) in collecting the information for your portfolio . Finally, in your research and in your analyses you have seen several ways to present information on the technology you are investigating as well as technology in general (the graphic assignment).

It is now time to put it all together. Sometime ago you downloaded a document called Postman's Principles. These were written by Neil Postman and presented in his book **The End of Education**. He has also written another book, **Technopoly** in which he addresses technology further. By this time you have heard of the works of others who address technology issues: Edward Abbey, Jeremy Rifkin, Daryl Chubin, and perhaps others. Now it is YOUR turn.

The week before the first semester examination will be reserved for two purposes. First, a few of the days will be spent in review for the examinations. Second, the remainder of the time will be spent on public presentations of your assessment of the technology you have been investigating. You are to prepare a portfolio of the analyses you have done so far. The portfolio must include NEAT and PRESENTABLE copies of the following:

- Summary of the portfolio information you collected in the first assignment
- The political party assignment product
- The de Bono analysis
- The Graphical Product
- The Lud/Rifkin Product

An additional product will be a three to five page typewritten paper which discusses how Postman's Principles apply to analysis of the technology you are investigating. Some of the principles will be more

clearly applicapable to your technology than the others, while some principles may not be immediately applicapable at all. You should discuss this with the others in your group as well as me or your History, English or Government teachers. It would be very wise to read the book's chapter which is available in the library. Of course, you might always go to the public library or college library and get his book yourself.

Your products MUST be designed for public display. They may be any of the following formats:

- Hyper Card Stack
- Hypertext Pages-HTML
- Professional level Poster Sessions (academic fair models in class)
- Word Processor Based Presentation Files (See me for information)
- HIGH quality video tape production (requires special microphones,lighting, tripod, etc)

These will be examples of the finest products Auburn Students can make. Aim high, The standard will be high.

Between now and the due date of January 17 you will be given THREE days in class to work on it. The other time MUST be spent out of class. Recall that many of the products, if you have been doing them all along, are already done and only need to be polished or revised.

DO NOT wait until the last minute to do this. It will be a major portion of the third six weeks grade and thus become a major portion of the semester grade.

1. Ask early if you need help.
2. Plan ahead.
3. Work together, if you selected to be part of a group.
4. Get started early.
5. Ask early if you need help.
6. Organize the tasks and divide the labor.
7. Remember, everyone in a group is responsible for all work.

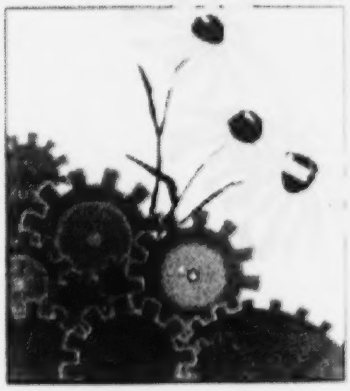
Finally, remember that we are dealing with a component of a field called Technology Assessment. This is a component of a larger field called Risk Analysis which includes Cost Benefit Analysis. In preparation for extensive projects the second semester in these areas, ask early if you need help.

## Graphic Representation

This graphic represents one group's view of the interaction between Science, Technology and Society.

Consider the following as you look at it:

1. What do the cog wheels represent ?
2. What does the plant represent ?
3. Would the image be as meaningful if the plant was not in flower ?
4. What do the flowers represent ?
5. Is the plant being crushed by the cogs ?
6. Have the cogs been abandoned ?
7. Are they being overgrown by the plant ?
8. Do you think that the artist(s) feel that technology and society can coexist ?
9. What compromises in coexistence do you think the artist(s) may be representing ?




# Assignment

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Your group is to design a graphic which illustrates the major points of your technology research. The graphic should represent the different **sides** of the issue which you have been investigating. It is to be presented as either of the following products, with which you should be familar and for which you should consult the **rubrics** in Mr. Bull's. Mr. Sauter's, or my room

1. T-shirt
2. Bumper Sticker
3. Poster

Consider the very *real possibility* that you will have to use the graphic to illustrate a public presentation of your research in the area of technology assessement and risk benefit analysis.

This assignment is due one week from the date it is given in class.

Sample Student Products

**Illustration from the Virginia Foundation for the Humanities and Public Policy's Science, Technology and Society Series, Autumn 1996**

BEST COPY AVAILABLE